

FACT SHEET FOR NPDES PERMIT WA-002029-0

FACILITY NAME: STANWOOD WASTEWATER TREATMENT PLANT

SUMMARY

The City of Stanwood owns and operates the wastewater treatment plant located in the city of Stanwood. The treatment system at the plant consists of an oxidation ditch type secondary treatment system.

Until recently, the treatment process at the plant consisted of complete mix aerated lagoons followed by a facultative lagoon. Because of the water quality concerns in the receiving water (Old Stillaguamish River), the treatment process at the plant was upgraded to the oxidation ditch type secondary treatment system, which produces better quality effluent. The new plant has a greater loading capacity in order to accommodate additional future loadings from the expected growth in the service area. The new oxidation ditch plant became operational in August 2004.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see *Appendix A—Public Involvement* of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in *Appendix E—Response to Comments*.

GENERAL INFORMATION	
Applicant	City of Stanwood
Facility Name and Address	Stanwood Wastewater Treatment Plant 26729 - 98th Avenue NW Stanwood, WA
Type of Treatment	Oxidation Ditch - Secondary Treatment System
Discharge Location	Old Stillaguamish River Latitude: 48° 14' 09" N Longitude: 122° 21' 22" W
Water Body ID Number	WA-05-1010

BACKGROUND INFORMATION

WASTEWATER CHARACTERIZATION

Primary sources of wastewater to the treatment plant are domestic wastewater from residential and commercial activities, and process wastewater from two industrial facilities: North Star Cold Storage and Carlson's Trucking. North Star Cold Storage is a seafood processing company that discharges process wastewater to the City's treatment plant. Carlson's Trucking transports food products in tanker trucks and discharges wash water from the tanker trucks to the treatment plant. Wastewater discharged from these industries exerts high biochemical oxygen demand (BOD).

DESCRIPTION OF THE WASTEWATER TREATMENT FACILITY

TREATMENT PROCESSES

The treatment process at the Stanwood plant includes influent flow measurement (in the main pump station force main), preliminary treatment through a rock trap and a mechanical fine screen, biological treatment with the aid of aeration in oxidation ditches, followed by solids settling in secondary clarifiers, disinfection with an ultraviolet (UV) light, and effluent flow measurement. There are two aerated sludge lagoons at the plant, which are used to store and stabilize waste activated sludge. A large 35-acre lagoon at the plant is used for emergency storage of treated effluent from the oxidation ditch treatment system. The plant effluent is diverted to the emergency storage lagoon when the effluent turbidity exceeds a preset limit, and when problems are encountered with the UV light disinfection system, such as, less than preset UV dosage, high ballast rack temperature, or failure of lamp ballast, lamp bank, UV control system, electrical power, UV bulb wiper system, or adjacent UV lamps. A diagram showing the facility layout is included in Appendix C.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent from the plant is discharged into the Old Stillaguamish River at river mile 4.1. The effluent is discharged via a 24-inch open-ended, coated corrugated metal pipe. The discharge outfall is approximately 30 feet offshore when the tide is at mean sea level, and it is below water level at most tidal elevations. A diagram showing the outfall location is included in Appendix C.

RESIDUAL SOLIDS

During treatment of wastewater, this treatment plant removes large solids (screenings) at the headworks, and biological solids (activated sludge) in the secondary clarifiers. Screenings are disposed of as solid waste at a local landfill. A certain percentage of the settled sludge (biosolids) in the secondary clarifiers is returned back to the oxidation ditch as return activated sludge (RAS). The rest of the settled sludge (biosolids) is transferred to the sludge storage lagoons as waste activated sludge (WAS) for stabilization and future utilization.

PERMIT STATUS

The existing permit for this plant was issued on June 30, 2003. This permit expires on June 30, 2008. Since there is a change in the type of treatment system (from lagoon to oxidation ditch) at the plant, and the new treatment system has higher design capacities, a new permit needs to be issued to replace the existing permit. An application for permit renewal was received by the Department on April 16, 2004, and accepted by the Department on July 13, 2004.

EXISTING EFFLUENT LIMITS

The existing permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), Fecal Coliform Bacteria, Total Residual Chlorine, and pH. The final effluent limitations as stipulated in Condition S1.A of the existing permit are as follows:

EFFLUENT LIMITATIONS		
Parameter	Average Monthly	Average Weekly
Biochemical Oxygen Demand (5-day) (BOD ₅)	30 mg/L, 170 lb/day 85% removal of influent BOD ₅	45 mg/L, 255 lb/day
Total Suspended Solids	75 mg/L, 425 lb/day	112 mg/L, 638 lb/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
pH	shall not be outside the range 6.0 to 9.0	
Parameter	Average Monthly	Maximum Daily
Total Residual Chlorine	80 µg/L	250 µg/L

SUMMARY OF INSPECTIONS

A Class I inspection of the plant was conducted on March 8, 2005. At the time of inspection, the plant was producing excellent quality effluent, with BOD₅ and TSS less than 10 mg/L. The inspection reports are filed in the records section at the Northwest Regional Office of the Department of Ecology.

SUMMARY OF COMPLIANCE WITH THE EXISTING PERMIT

The new oxidation ditch treatment system at the City's plant began operation in August 2004. The previous lagoon treatment system is no longer in operation. The City's existing NPDES permit is for the previous lagoon treatment system, and contains influent design criteria and effluent limits for the lagoon treatment system. The new plant has much higher influent design criteria. Due to administrative backlog, the Department has not yet renewed the City's NPDES permit that would reflect the new (higher) influent design criteria and new effluent limits. Based on the plant monitoring data, the Permittee is in compliance with the influent design criteria and effluent limits in the existing permit.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in an NPDES permit must be either technology-based or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment plant are stated in the following table. The design criteria are taken from the *City of Stanwood Wastewater Treatment Plant Upgrade and Expansion – Plans and Specifications*, Tetra Tech / KCM Inc., approved by the Department on March 5, 2002.

Parameter	Design Criteria
Average flow for the maximum month	1.5 MGD
BOD ₅ influent loading for the maximum month	4100 lb/day
TSS influent loading for the maximum month	4100 lb/day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC:

Parameter	Limit
pH	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ and TSS (concentrations)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lb/day) for BOD and TSS were calculated as the maximum monthly design flow (1.5 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = 376 lb/day.

The weekly average effluent mass loadings (lb/day) for BOD and TSS were calculated as 1.5 x monthly loading = 563 lb/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving waters while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into receiving waters shall not further degrade the existing water quality of the water body. In cases where the natural conditions of receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

As discussed below in the *Surface Water Quality Criteria* section, the Department, in the near future, will be conducting a TMDL study in the Old Stillaguamish River to address noncompliance with the water quality standards for temperature and fecal coliform. During this study, the Department staff will possibly monitor for dissolved oxygen (DO), ammonia, and metals in the river to determine if there is any concern in the river for these parameters.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses.

MIXING ZONES

The water quality standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Based on the definitions in WAC 173-201A-100, the maximum boundaries of the mixing zones for the facility discharge were calculated during the receiving water quality study conducted by the Department in 1992. This is presented in *An Analysis of the Effect of Discharged Wastewater on the Stillaguamish River at Stanwood*, Washington State Department of Ecology, July 1996. Based on the information presented in this receiving water quality study, the maximum boundaries of the mixing zones for the facility discharge are:

(1) Chronic Mixing Zone Boundaries:

- (i) The width of the mixing zone (perpendicular to the shoreline) is 25 feet. The mixing zone is centered over the outfall port extending 12.5 feet in both directions.
- (ii) The length of the mixing zone (parallel to the shoreline) is 210 feet. The mixing zone extends 105 feet in each direction, upstream and downstream, from the outfall port.

(2) Acute Mixing Zone Boundaries:

- (i) The width of the mixing zone (perpendicular to the shoreline) is 21 feet. The mixing zone is centered over the outfall port extending 10.5 feet in both directions.
- (ii) The length of the mixing zone (parallel to the shoreline) is 21 feet. The mixing zone extends 10.5 feet in each direction, upstream and downstream, from the outfall port.

DILUTION RATIOS

The dilution ratios of receiving water to facility effluent occurring within the allowable mixing zones at critical conditions were determined based on mixing zone boundary limitations. The Outfall Mixing Zone Analysis was included in the *City of Stanwood Wastewater Facilities Plan*, May 2000, approved by the Department on May 30, 2000. EPA approved outfall dilution model PLUMES was used for this analysis. Simulations were conducted for a range of future flow scenarios. Based on this analysis, the dilution ratios for a continuous discharge from the facility, for the year 2020 flows are:

- (i) Receiving Water : Facility Effluent = 36:1 for the chronic mixing zone.
- (ii) Receiving Water : Facility Effluent = 8:1 for the acute mixing zone.

These dilution ratios are specified in Condition S1.B of the permit.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Old Stillaguamish River, an estuary, which is designated as a Class A Marine Water in the vicinity of the outfall. Characteristic uses of Class A waters include:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Parameter	Criteria
Fecal Coliforms	14 colonies/100 mL maximum geometric mean
Dissolved Oxygen	6 mg/L minimum
Temperature	16 degrees Celsius maximum
pH	7.0 to 8.5 standard units
Toxics	No toxics in toxic amounts

The Federal Clean Water Act (Section 303(d)) requires the state to prepare a list of water bodies that do not meet water quality standards. This list is called the 303(d) list because the process is described in section 303(d) of the Clean Water Act. The Department is required to submit the 303(d) list to the Environmental Protection Agency (EPA) for approval. After approval by the EPA, the Department is required to develop water clean up plans, also known as Total Maximum Daily Loads or TMDLs, for each of the water bodies on the 303(d) list. The last approved 303(d) list is from the year 1998. On June 2, 2005, the Department submitted to the EPA for approval, the 303(d) list prepared in 2004, referred to as 2004 303(d) list. The Old Stillaguamish River is listed in the 2004 303(d) list as an impaired water body for temperature and fecal coliform.

Listing of the Old Stillaguamish River in the 2004 303(d) list for temperature and fecal coliform is based on monitoring conducted in the vicinity and upstream of the Stanwood wastewater treatment plant. The monitoring data shows that temperature and fecal coliform in the river exceeded the water quality standards at the sampling locations. The Department, in the near future, will be conducting a TMDL study in the river to address noncompliance with the water quality standards for temperature and fecal coliform. In the 1998 303(d) list, this portion of the river was listed for ammonia, copper, lead and nickel. Listing of the river for these parameters was based on limited data. The proposed 2004 303(d) list includes only ammonia and lead out of these four parameters. They are listed in Category 2, *Waters of Concern*, of the 2004 303(d) list. The parameters included in Category 2 of the 303(d) list are the ones that show some evidence of water quality problem, but not enough to require a TMDL study at this time. Additional monitoring in the river for these parameters will need to be conducted and the results evaluated during the Old Stillaguamish River Basin TMDL study. At the time when TMDL study is conducted, the Department may require the City to monitor the effluent for the parameters under investigation in the TMDL study.

Influent and effluent flows at this plant are expected to increase significantly in the next four to five years. The increased effluent discharge to the receiving waters will result in less overall dilution of the effluent in the Old Stillaguamish River, and less dilution of effluent reaching South Skagit Bay. It is possible that this future concern can be addressed by diversion of the effluent to the storage lagoon during/near high slack tide periods. Such a diversion would ensure

that effluent does not reach shellfish beds in South Skagit Bay within one or two tide cycles. At this time, there is insufficient hydrographic information to determine the critical high slack tides or the period of time that the effluent should be diverted to the storage lagoon. However, during the TMDL study to be conducted in the next few years, the Department will collect hydrographic information which would help determine this critical tide phase.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone as defined earlier, for the facility discharge is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC.

Dilution factors of effluent to receiving water that occur within the mixing zones have been determined at the critical condition by the use of PLUMES model. The dilution analysis based on PLUMES model is included in the *City of Stanwood - Wastewater Facilities Plan*, May 2000, approved by the Department on May 30, 2000. The dilution factors determined for the year 2020 Continuous Flow Discharge conditions are shown in the following table:

Criteria	Acute	Chronic
Aquatic Life	8	36

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

As stated earlier, the Department will be conducting a TMDL study in the river to address noncompliance with the water quality standards for temperature and fecal coliform. During this study, additional parameters such as dissolved oxygen, metals and ammonia, may be monitored to determine if the ambient concentrations are of concern for the water quality of the river. The TMDL study will provide a better evaluation of the quality of the receiving water. The water quality-based effluent limitations, if any, for the plant effluent, for conventional pollutants such as BOD₅, and/or toxic pollutants such as ammonia and metals, will be determined based on the results of the TMDL study and placed in future permits. A reasonable time schedule will be provided to achieve compliance with the new limits.

BOD₅—Based on current information, technology-based effluent limitations for BOD₅ are placed in the permit. As stated above, the limits may be more stringent in the future permit after completion of the TMDL study.

pH—Technology-based limit of 6 to 9 for the effluent has been protective of the water quality of the receiving water.

Fecal Coliform—As stated earlier, the Old Stillaguamish River is listed for fecal coliform in the 2004 303(d) list based on monitoring conducted in the vicinity and upstream of the Stanwood plant. The water quality-based fecal coliform limits for the plant effluent will be determined based on the results of the TMDL study. These limits, if more stringent, will be placed in future permits. Until then, technology-based fecal coliform limits (200/100 mL monthly average and 400/100 mL weekly average) are placed in the proposed permit.

Temperature—There are no temperature limits proposed in the permit at this time. Based on the results of the TMDL study to be conducted by the Department, there may be temperature limits in future permits.

Toxic Pollutants—Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the water quality standards for surface waters or from having surface water quality-based effluent limits.

As stated earlier, primary sources of wastewater tributary to the facility are domestic wastewater from residential, and commercial activities, and process wastewater from two industrial facilities in the city. One of the industrial facilities is a seafood processing industry, and the other is a food products transportation industry. Metals or organics in discharges from these industries are not expected to be present at levels of concern. The same is true for the treatment plant effluent. Based on the existing data for the Old Stillaguamish River and the treatment plant effluent, ammonia appears to be the only toxicant in the treatment plant effluent that may be of concern to the water quality of the receiving water. However, the (new) oxidation ditch type treatment system constructed by the City is designed to greatly reduce ammonia concentration in the wastewater prior to discharge. Monitoring conducted by the plant staff shows effluent ammonia concentrations generally below 1 mg/L.

The approved *City Stanwood Wastewater Facilities Plan* includes an analysis to determine water quality-based ammonia limits for the plant effluent. The analysis takes into consideration acute and chronic dilution ratios, background (ambient) ammonia concentration, and water quality standards for ammonia. The analysis results for the year 2020 continuous flows alternative show that water quality-based limits for the plant effluent are 17 mg/L maximum daily limit and 10 mg/L average monthly limit. These limits are placed in Condition S1.A of the proposed permit.

The TMDL study to be conducted by the Department in the Old Stillaguamish River will likely include monitoring of ammonia and metals in the river. At that time, the Department may require the City to monitor for metals, alkalinity, hardness, and other parameters in the treatment plant effluent. Based on the results of the TMDL study, there may be more stringent effluent limits for ammonia, and/or effluent limits for metals in future permits.

WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center at 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted in response to rapid screening tests fails to meet the performance standards in WAC 173-205-020 "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. However, in order to determine the impacts of the facility's discharge on the receiving waterbody, whole effluent toxicity characterization testing is required in this permit. In addition, Part E, *Toxicity Testing Data* of the EPA Form 3510-2A, *NPDES application*, requires treatment plants with design flows equal to or greater than 1.0 MGD to test for whole effluent toxicity.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be reevaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

This is a new facility, and very little data exist for the facility effluent. Therefore, it is not possible to determine at this time, the potential for this discharge to cause a violation of sediment quality standards. If the Department determines in the future that there is a potential for violation of the sediment quality standards, it will be addressed at the time of next permit reissuance, or the Department may issue an administrative order to require the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated ground water quality standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF THE PROPOSED EFFLUENT LIMITS WITH THE EXISTING EFFLUENT LIMITS

Comparison of the proposed and existing effluent limits (average monthly concentrations) is shown in the following table. Since the new facility consists of an oxidation ditch treatment process, the proposed TSS limit (30 mg/L) is lower than the previous lagoon treatment-based limit of 75 mg/L. In addition, the proposed permit contains water quality-based limits for ammonia. The new facility uses UV light for effluent disinfection and therefore, there is no effluent limit for chlorine in the proposed permit.

Existing and Proposed Effluent Limits:

Parameter	Existing Effluent Limits	Proposed Effluent Limits
BOD ₅ (average monthly concentration)	30 mg/L	30 mg/L
TSS (average monthly concentration)	75 mg/L	30 mg/L
Fecal Coliform (average monthly concentration)	200/100 mL	200/100 mL
pH (standard units)	6.0 to 9.0	6.0 to 9.0
Parameter	Existing Effluent Limits	Proposed Effluent Limits
Total Residual Chlorine (average monthly concentration)	80 µg/L	Not Applicable
Ammonia (average monthly concentration)	None	10 mg/L

MONITORING REQUIREMENT

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for effluent ammonia and temperature is required to characterize the effluent for these parameters. Testing of the effluent for additional conventional pollutants is required in Condition S11 of the proposed permit, as required by Part B6 of EPA Form 3510-2A, NPDES permit application, for the next permit cycle. Toxic pollutants monitoring of the effluent is included in the proposed permit as required by Part D, *Expanded Effluent Testing Data*, of the NPDES permit application. Whole effluent toxicity monitoring of the effluent is included in the proposed permit as required by Part E, *Toxicity Testing Data*, of the NPDES permit application.

The monitoring schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance for Oxidation Ditches, given in the current version of Ecology's *Permit Writer's Manual*.

EFFLUENT MONITORING WHILE DISCHARGING FROM THE EMERGENCY STORAGE LAGOON

As stated earlier, the plant effluent will be diverted to the emergency storage lagoon when the effluent turbidity exceeds a preset limit, or when problems are encountered with the UV light disinfection system, such as, less than preset UV dosage, high ballast rack temperature; failure of lamp ballast, lamp bank, UV control system, electrical power, UV bulb wiper system, or adjacent UV lamps.

Based on the quality of the effluent in the storage lagoon, it may be pumped to the headworks and retreated through the main plant, or it may be discharged directly by blending it with the main plant effluent upstream of the UV disinfection system. In order to protect the biota in the oxidation ditches, if the blended effluent can comply with the permitted effluent limits, the stored effluent from the lagoon should be discharged directly by blending it with the main plant effluent upstream of the UV disinfection system. The stored effluent must be monitored to determine if the blended effluent will be able to comply with the effluent limits for BOD and TSS (concentrations and mass emissions), pH, fecal coliform bacteria, and ammonia. If so, the stored effluent should be discharged directly by blending it with the main plant effluent upstream of the UV disinfection system. When this is done, both the main plant effluent and blended effluent must be monitored for determining compliance with the permit limits. The main plant effluent must be monitored prior to blending to determine compliance with the BOD and TSS percent removal limits. The blended effluent must be monitored for BOD and TSS (concentrations and mass emissions), pH, fecal coliform bacteria, and ammonia, to determine compliance with the permit limits. Depending on the quality of the stored effluent, it may have to be discharged and blended in at a controlled rate in order to be able to comply with the permitted effluent limits.

LAB ACCREDITATION

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for BOD, TSS, pH, and fecal coliform. The laboratory is planning to get accredited for ammonia, in the near future.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions in S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

The condition S3.G in the fact sheet contains the notification (to Ecology and DOH) language for shellfish protection. In addition to the standard notification requirements for overflows, plant bypasses, or failure of the disinfection system, the Permittee is required to notify the DOH Shellfish Program immediately of any diversion to the lagoon caused by poor effluent quality or a disinfection system problem. The plant staff do not need to notify or contact the DOH Shellfish Program if the diversion is caused only by glitches in the alarm or diversion system. The Permittee is also required to notify the DOH Shellfish Program immediately in case of a fecal coliform sample result of "too numerous to count (TNTC)."

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S5 as authorized under RCW 90.48.110, WAC 173-220-150, WAC 173-230, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

Condition S5.A of the proposed permit requires that an operator certified for at least a Class III plant by the State of Washington shall be in responsible charge of the day-to-day operation of the wastewater treatment plant. The new Stanwood plant is an extended aeration plant of 1.5 MGD capacity. In accordance with WAC 173-230-140, *Classification of Wastewater Treatment Plants*, this plant would be classified as a Class II plant. However, under this regulation, plants may be classified in a different group if they have characteristics that make operation less complex or more difficult than other similar plants of the same flow range. The proposed permit contains effluent ammonia limits, which will require the plant to be operated in a process mode that will achieve effluent nitrification and denitrification. In addition, because of shellfish concerns in the receiving waters downstream of the plant, the permit requires the effluent to be diverted to the storage lagoon under certain adverse circumstances. All this makes the Stanwood plant more difficult to operate. Therefore, in accordance with WAC 173-230-140 (1), this plant is classified as a Class III plant.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems, the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Snohomish County Health District.

PRETREATMENT

Since the pretreatment program has not been delegated to the Permittee, the pretreatment Condition S8 in the permit is a standard condition derived from the Federal Regulation 40 CFR 403.5.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards, sediment quality standards, or ground water standards, based on new information obtained from sources such as TMDL study, inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for the full allowable five (5)-year period.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

Washington State Department of Ecology.

Laws and Regulations (<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information

(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

1996. An Analysis of the Effect of Discharged Wastewater on the Stillaguamish River at Stanwood. Publication Number 96-330

City of Stanwood.

May 2000. Wastewater Facilities Plan. Tetra Tech/KCM, Inc.

March 2003. WWTP Upgrade and Expansion, Plans and Specifications. Tetra Tech/KCM, Inc.

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on July 13 and 20, 2004, in the *Everett Herald* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on October 21, 2005, in the *Everett Herald* to inform the public that draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone (425) 649-7201, or by writing to the address above.

APPENDIX B—GLOSSARY

Acute Toxicity—The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART—An acronym for “all known, available, and reasonable methods of prevention, control, and treatment.”

Ambient Water Quality—The existing environmental condition of the water in a receiving waterbody.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in waste water. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect waste water.

Average Monthly Discharge Limitation—The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation—The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅—The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)—The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring—Uninterrupted, unless otherwise noted in the permit.

Critical Condition—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample—A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User—A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)—"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference—A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued there under (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)—The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone—A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass Through—A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

pH—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User—A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)—A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)—

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Storm water—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Maximum Daily Load (TMDL)—Required under the Clean Water Act, this analysis determines the maximum amount of a pollutant that can be received by a water body and still meet state water quality standards. The TMDL also allocates the allowed loads among point and nonpoint sources of the pollutant and requires that pollutant inputs be reduced to meet the load and wasteload allocations.

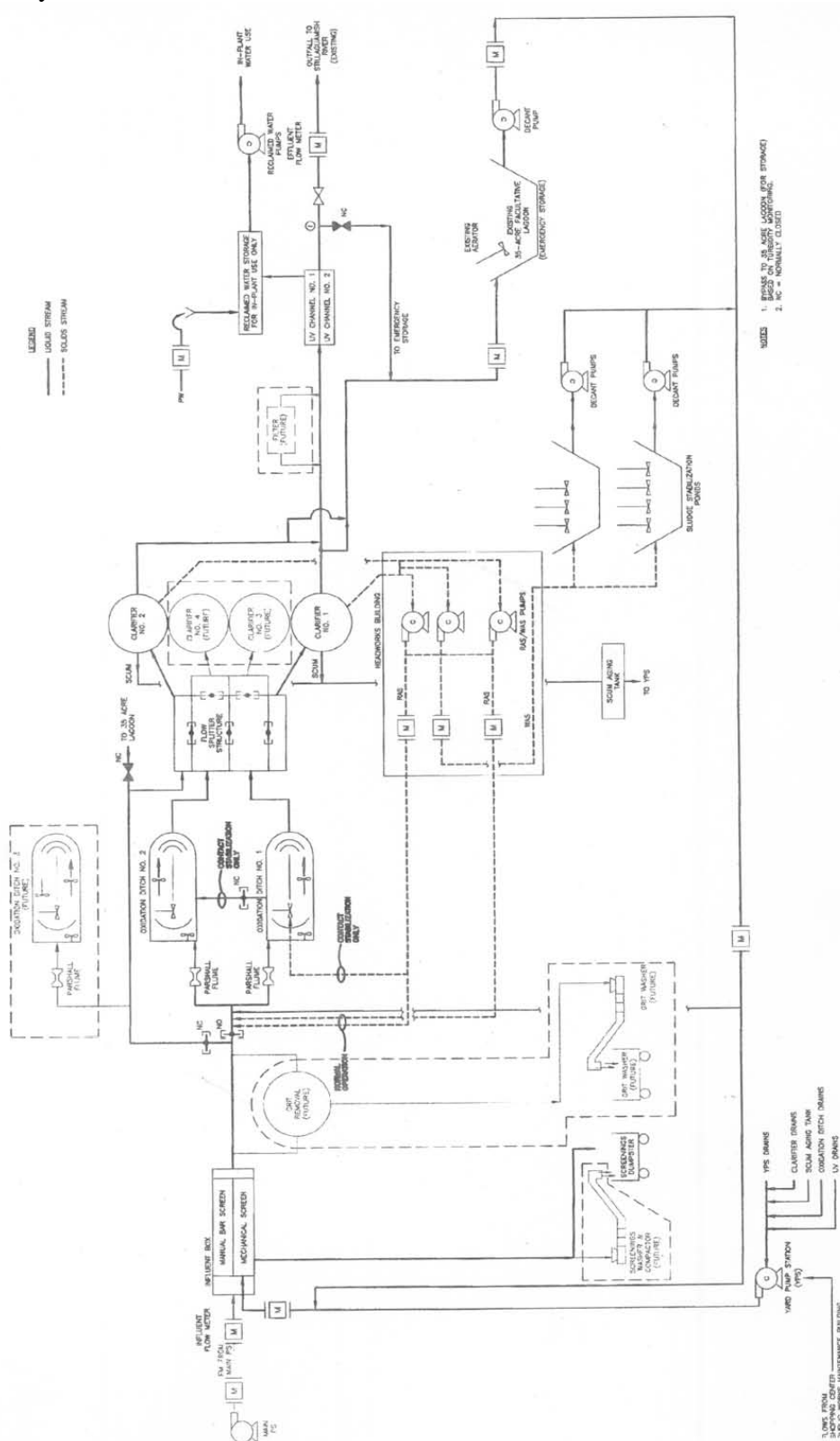
Total Suspended Solids (TSS)—Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

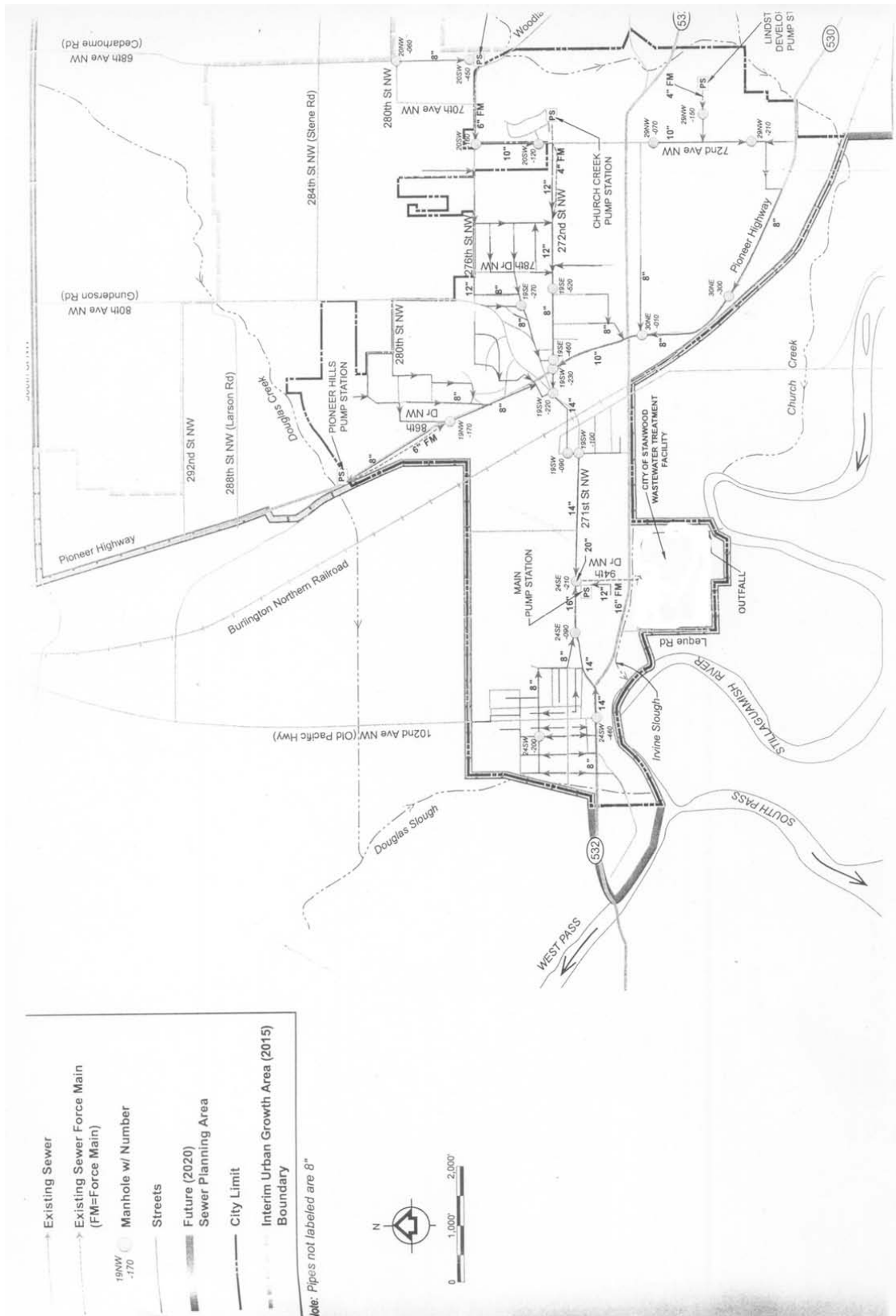
Water Quality-based Effluent Limit—A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving water.

APPENDIX C—FACILITY LAYOUT AND OUTFALL LOCATION

Plant Layout



Outfall Location



**APPENDIX D—LIST OF POLLUTANTS FOR TESTING
REQUIRED IN PERMIT CONDITION S2.A(3)**

EPA "PART D" NPDES APPLICATION FORM 2A TESTING REQUIREMENTS

The following pollutant scan data are required at the time of NPDES permit application for municipal treatment facilities with design flow greater than 1.0 mgd. At least three scans are to be conducted during the term of the permit. The metals are to be analyzed as “Total recoverable Metals” Section 4.1.4, Publication EPA-600/4-79-020, *Methods for Chemical Analysis of water and Wastes*, 1979. Please see Condition S2.A(4) of the permit.

METALS & MISC.	VOL. ORGANICS (Cont.)	BASE NEUTRALS (Cont.)
Antimony	Ethylbenzene	Bis (2-Chloroethyl)-Ether
Arsenic	Methyl Bromide	Bis (2-Chloroiso-Propyl) Ether
Beryllium	Methyl Chloride	Bis (2-Ethylhexyl) Phthalate
Cadmium	Methylene Chloride	4-Bromophenyl Phenyl Ether
Chromium	1,1,2,2-Tetrachloro-Ethane	Butyl Benzyl Phthalate
Copper	Tetrachloro-Ethylene	2-Chloronaphthalene
Lead	Toluene	4-Chlorophenyl Phenyl Ether
Mercury	1,1,1-Trichloroethane	Chrysene
Nickel	1,1,2-Trichloroethane	Di-N-Butyl Phthalate
Selenium	Trichlorethylene	Di-N-Octyl Phthalate
Silver	Vinyl Chloride	Dibenzo(A,H) Anthracene
Thallium		1,2-Dichlorobenzene
Zinc	ACID EXTRACTABLES	1,3-Dichlorobenzene
Cyanide	P-Chloro-M-Cresol	1,4-Dichlorobenzene
Total Phenolic Compounds	2-Chlorophenol	3,3-Dichlorobenzidine
Hardness (As CaCO ₃)	2,4-Dichlorophenol	Diethyl Phthalate
	2,4-Dimethylphenol	Dimethyl Phthalate
VOLATILE ORGANICS	4,6-Dinitro-O-Cresol	2,4-Dinitrotoluene
Acrolein	2,4-Dinitrophenol	2,6-Dinitrotoluene
Acrylonitrile	2-Nitrophenol	Fluoranthene
Benzene	4-Nitrophenol	Fluorene
Bromoform	Pentachlorophenol	Hexachlorobenzene
Carbon Tetrachloride	Phenol	Hexachlorobutadiene
Chlorobenzene	2,4,6-Trichlorophenol	Hexachlorocyclo-Pentadiene
Chlorodibromo-Methane		Hexachloroethane
Chloroethane	BASE NEUTRALS	Indeno(1,2,3-CD)Pyrene
2-Chloro-Ethylvinyl Ether	Acenaphthene	Isophorone
Chloroform	Acenaphthylene	Naphthalene
Dichlorobromo-Methane	Anthracene	Nitrobenzene
1,1-Dichloroethane	Benzidine	N-Nitrosodi-N-Propylamine
1,2-Dichloroethane	Benzo(A)Anthracene	N-Nitrosodi-Methylamine
Trans-1,2-Dichloro Ethylene	3,4 Benzo-Fluoranthene	N-Nitrosodi-Phenylamine
1,1-Dichloroethylene	Benzo(Ghi)Perylene	Phenanthrene
1,2-Dichloropropane	Benzo(K)Fluoranthene	Pyrene
1,3-Dichloro-Propylene	Bis (2-Chloroethoxy) Methane	1,2,4-Trichlorobenzene

APPENDIX E—RESPONSE TO COMMENTS

Comments on the draft permit were received from the Permittee, and from the Department of Ecology staff in the Water Quality Program at the Northwest Regional Office, and Environmental Assessment Program.

- (1) The Permittee commented that the submittal date for the Operation and Maintenance (O&M) Manual in Permit Condition S5.H. be revised to 60 days after the effective date of the new permit. The O&M Manual submittal date has been revised to March 1, 2006, in Condition S5.H.
- (2) Based on the comments from the Department of Ecology staff, the following language was added to Permit Condition S1.A., *Effluent Limitations*:

The Department may require the Permittee to comply with additional and/or more stringent effluent limitations during critical low-flow periods in the river to meet water quality standards, based on information obtained during or after completion of the Old Stillaguamish River TMDL study to be conducted by the Department. Inclusion of such effluent limitations will require permit modification or issuance of an administrative order. In lieu of complying with such effluent limitations, the Permittee may choose to store the effluent in the storage lagoon during critical low flow periods in the river. The critical low-flow periods would be determined by the Department during the TMDL study.

The reason for adding this language to the *Effluent Limitations* condition is as follows:

Water Quality surveys were conducted in the Old Stillaguamish River Channel in July and September of 2004. The surveys were a joint effort of the Department and the Stillaguamish Tribe staff. Dissolved oxygen (DO) and pH data collected at a monitoring station upstream of the plant during the September survey showed noncompliance with Class A water quality standards for freshwater. During this survey, dissolved oxygen (DO) data collected at another monitoring station upstream of the plant also showed noncompliance with Class A water quality standards for freshwater. The Department plans to conduct a Total Maximum Daily Load (TMDL) study in the river beginning in July 2006, as a first step in achieving compliance with the water quality standards in the river. If, during this study, or after its completion, it is determined that the plant effluent is a contributor to the noncompliance of the water quality standards in the river, the Department, through permit modification or issuance of an administrative order, may impose additional and/or more stringent effluent limitations applicable to critical low flow periods in the river. Such effluent limitations may include BOD, and nitrogen and phosphorus compounds. If such effluent limitations are imposed, the City may choose to store the effluent in the storage lagoon during critical low flow periods in the river.